Contents:

Volume 133, Number 1, April 1995

Mini-review

1 **Kinesin-II, a membrane traffic motor in axons, axonemes, and spindles.**
J.M. Scholey

Regular Articles

5 **A nuclear cap-binding complex binds Balbiani ring pre-mRNA cotranscriptionally and accompanies the ribonucleoprotein particle during nuclear export.**
N. Visa, E. Izaurralde, J. Ferreira, B. Daneholt, and I.W. Mattaj

15 **Topology of sphingolipid galactosyltransferases in ER and Golgi: Transbilayer movement of monohexosyl sphingolipids is required for higher glycosphingolipid biosynthesis.**
K.N.J. Burger, P. van der Bijl, and G. van Meer

29 **An endosomal βCOP is involved in the pH-dependent formation of transport vesicles destined for late endosomes.**
F. Aniento, F. Gu, R.G. Parton, and J. Gruenberg

43 **Interspecies diversity of the occludin sequence: cDNA cloning of human, mouse, dog, and rat–kangaroo homologues.**
Y. Ando-Akatsuka, M. Saitou, T. Hirase, M. Kishi, A. Sakakibara, M. Itoh, S. Yonemura, M. Furuse, and S. Tsukita

49 **Recognition of two classes of oligoproline sequences in profilin-mediated acceleration of actin-based *Shigella* motility.**
W.L. Zeile, D.L. Purich, and F.S. Southwick

61 **Formation of actin filament bundles in the ring canals of developing *Drosophila* follicles.**
L.G. Tilney, M.S. Tilney, and G.M. Guild

75 **Aberrantly segregating centromeres activate the spindle assembly checkpoint in budding yeast.**
W.A.E. Wells and A.W. Murray

85 **Pds1p is required for faithful execution of anaphase in the yeast, *Saccharomyces cerevisiae*.**
A. Yamamoto, V. Guacci, and D. Koshland

99 **Pds1p, an inhibitor of anaphase in budding yeast, plays a critical role in the APC and checkpoint pathway(s).**
A. Yamamoto, V. Guacci, and D. Koshland

111 **Role of calmodulin and Spc110p interaction in the proper assembly of spindle pole body components.**
H.A. Sundberg, L. Goetsch, B. Byers, and T.N. Davis

125 **Influence of M-phase chromatin on the anisotropy of microtubule asters.**
M. Dogterom, M.-A. Félix, C.C. Guet, and S. Leibler

141 **Mitosis-specific phosphorylation of vimentin by protein kinase C coupled with reorganization of intracellular membranes.**
Y. Takai, M. Ogawara, Y. Tomono, C. Moritoh, S. Imajoh-Ohmi, O. Tsutsumi, Y. Taketani, and M. Inagaki

151 **Microtubule transport and assembly during axon growth.**
W. Yu, M.J. Schwei, and P.W. Baas

159 **Granulocyte macrophage colony stimulating factor produced in lesioned peripheral nerves induces the up-regulation of cell surface expression of MAC-2 by macrophages and Schwann cells.**
A. Saada, F. Reichert, and S. Rotshenker

169 **Integrin α subunit ratios, cytoplasmic domains, and growth factor synergy regulate muscle proliferation and differentiation.**
S.K. Sastry, M. Lakonishok, D.A. Thomas, A.F. Horwitz, and J. Muschler

185 **Partial laminin α2 chain restoration in α2 chain-deficient *dy/dy* mouse by primary muscle cell culture transplantation.**
J.-T. Vilquin, I. Kinoshita, B. Roy, M. Goulet, E. Engvall, F. Tomé, M. Fardeau, and J.P. Tremblay

199 **Suppression of tumorigenicity by plakoglobin: An augmenting effect of N-cadherin.**
I. Simcha, B. Geiger, S. Yehuda-Levenberg, D. Salomon, and A. Ben-Ze'ev

211 **UV activates growth factor receptors via reactive oxygen intermediates.**
R.-P. Huang, J.-X. Wu, Y. Fan, and E.D. Adamson

Volume 133, Number 2, April 1996

Mini-Review

221 **Overlapping functions of myosin-I isoforms?**
E.M. Ostap and T.D. Pollard

Regular Articles

225 **In vivo evidence that TATA-binding protein/SL1 colocalizes with UBF and RNA polymerase I when rRNA synthesis is either active or inactive.**
P. Jordan, M. Mannervik, L. Tora, and M. Carmo-Fonseca

235 **The rDNA transcription machinery is assembled during mitosis in active NORs and absent in inactive NORs.**
P. Roussel, C. André, L. Comai, and D. Hernandez-Verdun

247 **Different biosynthetic transport routes to the plasma membrane in BHK and CHO cells.**
T. Yoshimori, P. Keller, M.G. Roth, and K. Simons

257 **Cab45, a novel Ca^{2+}-binding protein localized to the Golgi lumen.**
P.E. Scherer, G.Z. Lederkremer, S. Williams, M. Fogliano, G. Baldini, and H.F. Lodish

269 **The sorting sequence of the peroxisomal integral membrane protein PMP47 is contained within a short hydrophilic loop.**
J.M. Dyer, J.A. McNew, and J.M. Goodman

281 **Isoforms of the invariant chain regulate transport of MHC class II molecules to antigen processing compartments.**
P.A.M. Warmerdam, E.O. Long, and P.A. Roche

293 **Ligand-induced protease receptor translocation into caveolae: A mechanism for regulating cell surface proteolysis of the tissue factor–dependent coagulation pathway.**
J.R. Sevinsky, L.V.M. Rao, and W. Ruf

305 **Dictyostelium mutants lacking multiple classic myosin I isoforms reveal combinations of shared and distinct functions.**
G. Jung, X. Wu, and J.A. Hammer III

325 **Induction of DNA synthesis and apoptosis in cardiac myocytes by E1A oncoprotein.**
Y. Liu and R.N. Kitsis

335 **Fas and Fas ligand in embryos and adult mice: Ligand expression in several ir :nune-privileged tissues and coexpression in adult tissues characterized by apoptotic cell turnover.**
L.E. French, M. Hahne, I. Viard, G. Radlgruber, R. Zanone, K. Becker, C. Müller, and J. Tschopp

345 **14-3-3 proteins associate with phosphorylated simple epithelial keratins during cell cycle progression and act as a solubility cofactor.**
J. Liao and M.B. Omary

359 **The binding of plakoglobin to desmosomal cadherins: Patterns of binding sites and topogenic potential.**
N.A. Chitaev, R.E. Leube, R.B. Troyanovsky, L.G. Eshkind, W.W. Franke, and S.M. Troyanovsky

371 **Inner dynein arms but not outer dynein arms require the activity of kinesin homologue protein KHP1^{FLA10} to reach the distal part of flagella in *Chlamydomonas*.**
G. Piperno, K. Mead, and S. Henderson

381 **Alcohol inhibits cell–cell adhesion mediated by human L1.**
R. Ramanathan, M.F. Wilkemeyer, B. Mittal, G. Perides, and M.E. Charness

391 **Adhesion-dependent cell cycle progression linked to the expression of cyclin D1, activation of cyclin E-cdk2, and phosphorylation of the retinoblastoma protein.**
X. Zhu, M. Ohtsubo, R.M. Böhmer, J.M. Roberts, and R.K. Assoian

405 **Stimulation of fibroblast growth factor receptor-1 occupancy and signaling by cell surface–associated syndecans and glypican.**
R. Steinfeld, H. Van Den Berghe, and G. David

417 **Inhibition of laminin α1-chain expression leads to alteration of basement membrane assembly and cell differentiation.**
A. De Arcangelis, P. Neuville, R. Boukamel, O. Lefebvre, M. Kedinger, and P. Simon-Assmann

431 **A novel role for the integrin-binding III-10 module in fibronectin matrix assembly.**
D.C. Hocking, R.K. Smith, and P.J. McKeown-Longo

445 **Leukocyte adhesion to vascular endothelium induces E-selectin linkage to the actin cytoskeleton.**
M. Yoshida, W.F. Westlin, N. Wang, D.E. Ingber, A. Rosenzweig, N. Resnick, and M.A. Gimbrone, Jr.

457 **Chondrogenic differentiation of clonal mouse embryonic cell line ATDC5 in vitro: Differentiation-dependent gene expression of parathyroid hormone (PTH)/PTH-related peptide receptor.**
C. Shukunami, C. Shigeno, T. Atsumi, K. Ishizeki, F. Suzuki, and Y. Hiraki

469 **Intracellular interaction of collagen-specific stress protein HSP47 with newly synthesized procollagen.**
M. Satoh, K. Hirayoshi, S. Yokota, N. Hosokawa, and K. Nagata

Volume 133, Number 3, May 1996

485 **RAN/TC4 mutants identify a common requirement for snRNP and protein import into the nucleus.**
I. Palacios, K. Weis, C. Klebe, I.W. Mattaj, and C. Dingwall

495 **Native 3D structure of eukaryotic 80S ribosome: Morphological homology with the *E. coli* 70S ribosome.**
A. Verschoor, S. Srivastava, R. Grassucci, and J. Frank

507 **A v-SNARE implicated in intra-Golgi transport.**
M. Nagahama, L. Orci, M. Ravazzola, M. Amherdt, L. Lacomis, P. Tempst, J.E. Rothman, and T.H. Söllner

517 **An endoplasmic reticulum storage disease causing congenital goiter with hypothyroidism.**
P.S. Kim, O-Y. Kwon, and P. Arvan

529 **Vps10p cycles between the late-Golgi and prevacuolar compartments in its function as the sorting receptor for multiple yeast vacuolar hydrolases.**
A.A. Cooper and T.H. Stevens

543 **Transport of vesicular stomatitis virus G protein to the cell surface is signal mediated in polarized and nonpolarized cells.**
A. Müsch, H. Xu, D. Shields, and E. Rodriguez-Boulan

559 **Membrane fusion mediated by the influenza virus hemagglutinin requires the concerted action of at least three hemagglutinin trimers.**
T. Danieli, S.L. Pelletier, Y.I. Henis, and J.M. White

571 **Three-dimensional structure of the Z band in a normal mammalian skeletal muscle.**
J.P. Schroeter, J.-P. Bretaudiere, R.L. Sass, and M.A. Goldstein

585 **Cell cycle regulation of dynein association with membranes modulates microtubule-based or organelle transport.**
J. Niclas, V.J. Allan, and R.D. Vale

595 **DSK1, a novel kinesin-related protein from the diatom *Cylindrotheca fusiformis* that is involved in anaphase spindle elongation.**
H. Wein, M. Foss, B. Brady, and W.Z. Cande

605 **A purified *Drosophila* septin complex forms filaments and exhibits GTPase activity.**
C.M. Field, O. Al-Awar, J. Rosenblatt, M.L. Wong, B. Alberts, and T.J. Mitchison

617 **Cell type–specific roles for Cdc42, Rac, and RhoL in *Drosophila* oogenesis.**
A.M. Murphy and D.J. Montell

631 **Neurotrophins promote the survival and development of neurons in the cerebellum of hypothyroid rats in vivo.**
I. Neveu and E. Arenas

647 **Neuroglian-mediated cell adhesion induces assembly of the membrane skeleton at cell contact sites.**
R.R. Dubreuil, G. MacVicar, S. Dissanayake, C. Liu, D. Homer, and M. Hortsch

657 **Heterophilic interactions of DM-GRASP: GRASP-NgCAM interactions involved in neurite extension.**
A.P. DeBernardo and S. Chang

667 **Identification of two Sox17 messenger RNA isoforms, with and without the high mobility group box region, and their differential expression in mouse spermatogenesis.**
Y. Kanai, M. Kanai-Azuma, T. Noce, T.C. Saido, T. Shiroishi, Y. Hayashi, and K. Yazaki

683 **Insulin-like growth factor binding protein-5 modulates muscle differentiation through an insulin-like growth factor–dependent mechanism.**
P.L. James, C.E.H. Stewart, and P. Rotwein

695 **An antiglycolipid antibody inhibits Madin-Darby canine kidney cell adhesion to laminin and interferes with basolateral polarization and tight junction formation.**
G.M. Zinkl, A. Zuk, P. van der Bijl, G. van Meer, and K.S. Matlin

709 **Heparin induces dimerization and confers proliferative activity onto the hepatocyte growth factor antagonists NK1 and NK2.**
R.H. Schwall, L.Y. Chang, P.J. Godowski, D.W. Kahn, K.J. Hillan, K.D. Bauer, and T.F. Zioncheck

---

Volume 133, Number 4, May 1996

719 **Intron-dependent recruitment of pre-mRNA splicing factors to sites of transcription.**
S. Huang and D.L. Spector

733 **The ion channel activity of the influenza virus M_2 protein affects transport through the Golgi apparatus.**
T. Sakaguchi, G.P. Leser, and R.A. Lamb

749 **A novel adaptor-related protein complex.**
F. Simpson, N.A. Bright, M.A. West, L.S. Newman, R.B. Darnell, and M.S. Robinson

761 **Association of a dynamin-like protein with the Golgi apparatus in mammalian cells.**
J.R. Henley and M.A. McNiven

777 **Transport of an external Lys-Asp-Glu-Leu (KDEL) protein from the plasma membrane to the endoplasmic reticulum: Studies with cholera toxin in vero cells.**
I.V. Majoul, P.I.H. Bastiaens, and H.-D. Söling

791 **Endocytosis of GPI-anchored proteins in human lymphocytes: Role of glycolipid-based domains, actin cytoskeleton, and protein kinases.**
M. Deckert, M. Ticchioni, and A. Bernard

801 **Oligomeric and subunit structure of the *Helicobacter pylori* vacuolating cytotoxin.**
P. Lupetti, J.E. Heuser, R. Manetti, P. Massari, S. Lanzavecchia, P.L. Bellon, R. Dallai, R. Rappuoli, and J.L. Telford

809 **The sea urchin sperm receptor for egg jelly is a modular protein with extensive homology to the human polycystic kidney disease protein, PKD1.**
G.W. Moy, L.M. Mendoza, J.R. Schulz, W.J. Swanson, C.G. Glabe, and V.D. Vacquier

819 **Identification of a small cytoplasmic ankyrin (Ank_{G119}) in the kidney and muscle that binds βIΣ* spectrin and associates with the Golgi apparatus.**
P. Devarajan, P.R. Stabach, A.S. Mann, T. Ardito, M. Kashgarian, and J.S. Morrow

831 **Mammalian cells express three distinct dynein heavy chains that are localized to different cytoplasmic organelles.**
E.A. Vaisberg, P.M. Grissom, and J.R. McIntosh

843 **Distinct cellular and subcellular patterns of expression imply distinct functions for the *Drosophila* homologues of moesin and the neurofibromatosis 2 tumor suppressor, merlin.**
B.M. McCartney and R.G. Fehon

853 **Disrupted glial fibrillary acidic protein network in astrocytes from vimentin knockout mice.**
M. Galou, E. Colucci-Guyon, D. Ensergueix, J.-L. Ridet, M. Giminez y Ribotta, A. Privat, C. Babinet, and P. Dupouey

865 **Yeast *src* homology region 3 domain-binding proteins involved in bud formation.**
Y. Matsui, R. Matsui, R. Akada, and A. Toh-e

879 **Associations among PH and SH3 domain–containing proteins and Rho-type GTPases in yeast.**
L. Bender, H.S. Lo, H. Lee, V. Kokojan, J. Peterson, and A. Bender

895 **Deficiency of Src family kinases p59/61^{hck} and p58$^{c\text{-}fgr}$ results in defective adhesion-dependent neutrophil functions.**
C.A. Lowell, L. Fumagalli, and G. Berton

911 **The fucosyltransferase FucT-VII regulates E-selectin ligand synthesis in human T-cells.**
R.N. Knibbs, R.A. Craig, S. Natsuka, A. Chang, M. Cameron, J.B. Lowe, and L.M. Stoolman

921 **Inactivation of the integrin β6 subunit gene reveals a role of epithelial integrins in regulating inflammation in the lungs and skin.**
X.-Z. Huang, J.F. Wu, D. Cass, D.J. Erle, D. Corry, S.G. Young, R.V. Farese, Jr., and D. Sheppard

Volume 133, Number 5, June 1996

929 **Demonstration of a dynamic, transcription-dependent organization of pre-mRNA splicing factors in polytene nuclei.**
G. Baurén, W.-Q. Jiang, K. Bernholm, F. Gu, and L. Wieslander

943 **Metazoan rDNA enhancer acts by making more genes transcriptionally active.**
Y.N. Osheim, E.B. Mougey, J. Windle, M. Anderson, M. O'Reilly, O.L. Miller, Jr., A. Beyer, and B. Sollner-Webb

955 **Nuclear proteins of quiescent *Xenopus laevis* cells inhibit DNA replication in intact and permeabilized nuclei.**
J. Fang and R.M. Benbow

971 **A GTPase distinct from ran is involved in nuclear protein import.**
D.J. Sweet and L. Gerace

985 **Evidence using a green fluorescent protein-glucocorticoid receptor chimera that the RAN/TC4 GTPase mediates an essential function independent of nuclear protein import.**
K.L. Carey, S.A. Richards, K.M. Lounsbury, and I.G. Macara

997 **Signal transduction by the polymeric immunoglobulin receptor suggests a role in regulation of receptor transcytosis.**
M.H. Cardone, B.L. Smith, P.A. Mennitt, D. Mochly-Rosen, R.B. Silver, and K.E. Mostov

1007 **Multiple features of the p59^{fyn} src homology 4 domain define a motif for immune-receptor tyrosine-based activation motif (ITAM) binding and for plasma membrane localization.**
L.K. Timson Gauen, M.E. Linder, and A.S. Shaw

1017 **A new pathway for protein export in *Saccharomyces cerevisiae*.**
A.E. Cleves, D.N.W. Cooper, S.H. Barondes, and R.B. Kelly

1027 **Differential distribution of α subunits and βγ subunits of heterotrimeric G proteins on Golgi membranes of the exocrine pancreas.**
S.P. Denker, J.M. McCaffery, G.E. Palade, P.A. Insel, and M.G. Farquhar

1041 **Role of Ced-3/ICE-family proteases in staurosporine-induced programmed cell death.**
M.D. Jacobson, M. Weil, and M.C. Raff

1053 **Constitutive expression of the machinery for programmed cell death.**
M. Weil, M.D. Jacobson, H.S.R. Coles, T.J. Davies, R.L. Gardner, K.D. Raff, and M.C. Raff

1061 **Subunit composition of neurofilaments specifies axonal diameter.**
Z. Xu, J.R. Marszalek, M.K. Lee, P.C. Wong, J. Folmer, T.O. Crawford, S.-T. Hsieh, J.W. Griffin, and D.W. Cleveland

1071 **Sequence and transmembrane topology of MEC-4, and ion channel subunit required for mechanotransduction in *Caenorhabditis elegans*.**
C.-C. Lai, K. Hong, M. Kinnell, M. Chalfie, and M. Driscoll

1083 **Inhibition of IκB-α phosphorylation and degradation and subsequent NF-κB activation by glutathione peroxidase overexpression.**
C. Kretz-Remy, P. Mehlen, M.-E. Mirault, and A.-P. Arrigo

1095 **Motogenic and morphogenic activity of epithelial receptor tyrosine kinases.**
M. Sachs, K.M. Weidner, V. Brinkmann, I. Walther, A. Obermeier, A. Ullrich, and W. Birchmeier

1109 **Endoglin modulates cellular responses to TGF-β1.**
P. Lastres, A. Letamendía, H. Zhang, C. Rius, N. Almendro, U. Raab, L.A. López, C. Langa, A. Fabra, M. Letarte, and C. Bernabéu

1123 **Activities of the *Wnt*-1 class of secreted signaling factors are antagonized by the *Wnt*-5A class and by a dominant negative cadherin in early *Xenopus* development.**
M.A. Torres, J.A. Yang-Snyder, S.M. Purcell, A.A. DeMarais, L.L. McGrew, and R.T. Moon

1139 **ADDITIONS AND CORRECTIONS**

Volume 133, Number 6, June 1996

1141 **Nic96p is required for nuclear pore formation and functionally interacts with a novel nucleoporin, Nup188p.**
U. Zabel, V. Doye, H. Tekotte, R. Wepf, P. Grandi, and E.C. Hurt

1153 **The yeast nucleoporin Nup188p interacts genetically and physically with the core structures of the nuclear pore complex.**
U. Nehrbass, M.P. Rout, S. Maguire, G. Blobel, and R.W. Wozniak

1163 **Dynamic localization of the nuclear import receptor and its interactions with transport factors.**
D.M. Koepp, D.H. Wong, A.H. Corbett, and P.A. Silver

1177 **A biosynthetic regulated secretory pathway in constitutive secretory cells.**
R.A. Chavez, S.G. Miller, and H.-P.H. Moore

1193 **Oligomerization and maturation of Na,K-ATPase: Functional interaction of the cytoplasmic NH_2 terminus of the β subunit with the α subunit.**
K. Geering, A. Beggah, P. Good, S. Girardet, S. Roy, D. Schaer, and P. Jaunin

1205 **Mutations in the *Drosophila hook* gene inhibit endocytosis of the boss transmembrane ligand into multivesicular bodies.**
H. Krämer and M. Phistry

1217 **Annexin II in exocytosis: Catecholamine secretion requires the translocation of p36 to the subplasmalemmal region in chromaffin cells.**
S. Chasserot-Golaz, N. Vitale, I. Sagot, B. Delouche, S. Dirrig, L.-A. Pradel, J.-P. Henry, D. Aunis, and M.-F. Bader

1237 **The synaptic vesicle cycle: A single vesicle budding step involving clathrin and dynamin.**
K. Takei, O. Mundigl, L. Daniell, and P. De Camilli

1251 **Ultrastructural and biochemical characterization of autophagy in higher plant cells subjected to carbon deprivation: Control by the supply of mitochondria with respiratory substrates.**
S. Aubert, E. Gout, R. Bligny, D. Marty-Mazars, F. Barrieu, J. Alabouvette, F. Marty, and R. Douce

1265 **Traffic, polarity, and detergent solubility of a glycosylphosphatidylinositol–anchored protein after LDL-deprivation of MDCK cells.**
L.A. Hannan and M. Edidin

1277 **Synthetic lethality screen identifies a novel yeast myosin I gene (*MYO5*): Myosin I proteins are required for polarization of the actin cytoskeleton.**
H.V. Goodson, B.L. Anderson, H.M. Warrick, L.A. Pon, and J.A. Spudich

1293 **Actin organization, bristle morphology, and viability are affected by actin-capping protein mutations in *Drosophila*.**
R. Hopmann, J.A. Cooper, and K.G. Miller

1307 **A novel suppressor of *ras1* in fission yeast, *byr4*, is a dosage-dependent inhibitor of cytokinesis.**
K. Song, K.E. Mach, C.-Y. Chen, T. Reynolds, and C.F. Albright

1321 **A novel member of the *rho* family of small GTP-binding proteins is specifically required for cytokinesis.**
D.A. Larochelle, K. Vithalani, and A. De Lozanne

1331 **Yeast ubiquitin-like genes are involved in duplication of the microtubule organizing center.**
S. Biggins, I. Ivanovska, and M.D. Rose

1347 **Active transport of photoactivated tubulin molecules in growing axons revealed by a new electron microscopic analysis.**
T. Funakoshi, S. Takeda, and N. Hirokawa

1355 **Tubulin transport in neurons.**
K.E. Miller and H.C. Joshi

1367 **Mice expressing a mutant desmosomal cadherin exhibit abnormalities in desmosomes, proliferation, and epidermal differentiation.**
E. Allen, Q.-C. Yu, and E. Fuchs

1383 **The phosphoprotein stathmin is essential for nerve growth factor–stimulated differentiation.**
G. Di Paolo, V. Pellier, M. Catsicas, B. Antonsson, S. Catsicas, and G. Grenningloh

1391 **Intracellular pH regulation during spreading of human neutrophils.**
N. Demaurex, G.P. Downey, T.K. Waddell, and S. Grinstein

1403 **Rho-stimulated contractility drives the formation of stress fibers and focal adhesions.**
M. Chrzanowska-Wodnicka and K. Burridge

1417 **AUTHOR INDEX FOR VOLUME 133**

1425 **SUBJECT INDEX FOR VOLUME 133**